

Enviro-News

Promoting **recycling** practices, **watershed** education, and **environmental** stewardship for Nevada

A Publication for School and Community Educators



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BACK TO SCHOOL EDITION

Lessons Learned – Education in the Future

The TAHOE CENTER FOR ENVIRONMENTAL SCIENCES (TERC) hosted another lecture this July with presenters **Rick Pomeroy, Ph.D.**, UC Davis School of Education, and **David Crowther, Ph.D.**, UNR School of Education. The presentation, **New Standards: A Peek at the Future of Education**, focused on the changes and challenges facing educators. Implementing new standards in math, language arts and science will require adaptation and change for both the educator and the learner.

The overall goal of the new education standards is to provide learners with critical thinking and problem solving skills to serve them better during college, careers and citizenship in the 21st century world. They also offered guidance on how to link the Common Core and Next Generation Science Standards (NGSS) into classrooms. Examples were provided for using the new standards as a means to engage learners in real life experiences and to make better use of the

natural environment as a classroom.

A group activity, the **Pendulum Challenge!** exemplified the lesson that active participation works.

At the end of the exercise the “do-er” was able to distinguish, describe and exemplify a “pendulum” from having completed and experienced the process.

The seminar promoted the concept of presenting content in an environment that is engaging and interactive, in which learners share ideas and are exposed to real experiences that empower their learning. Welcome back to school and to a new day in education. Let’s educate!

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With a partner

Using the following materials:

6 index cards = \$0.25 per card

\$0.50 cent piece = \$0.50 (of course)

1 large paperclip = \$0.50

Scissors only (no tape) (no charge)

Problem: Construct a pendulum that is 30.5 centimeters (12 inches) long for less than \$2.50 that swings the \$0.50 cent piece.

12 minutes are given to complete the problem.

What's a
“PENDULUM”
anyway?

For More Information Contact:

• **Rick Pomeroy, Ph.D.**, UC Davis School of Education. President of the California Science Teachers Association (CSTA) and Director of the UC Davis Young Scholars Program.
jrpomeroy@ucdavis.edu

• **Dr. David T. Crowther, Ph.D.**, UNR School of Education and recently appointed Director of the Raggio Research Center for STEM Education at UNR. crowther@unr.edu

STEM Education - Nevada Definition

STEM (Science, Technology, Engineering, and Mathematics) education focuses on active teaching and learning centered on relevant experiences, problem solving and critical thinking processes. STEM Education emphasizes the natural interconnectedness of science, technology, engineering and mathematics and their connection to other disciplines to produce informed citizens who possess and apply the necessary understanding to expand Nevada's STEM capable workforce in order to compete in a global society.

If STEM is taught properly, it will include Common Core L.A. and Math as well as history, culture, art and many other relevant subjects that STEM areas provide a context for study.



All 66 activities (including Idea Pools) in the Project WET Curriculum and Activity Guide 2.0 have been reviewed and correlated to the Next Generation Science Standards. The results are on the [educators portal](#).



Source: NASA/courtesy of nasaimages.org

EPA Releases New Climate Science Lesson Plans for Middle School Classrooms

EPA has released seven new lesson plans about climate change developed specifically for middle school students. The lesson plans and related classroom activities are tailored to meet the National Science Learning Standards and the majority can be completed in one class period. Topics covered include: Differences between weather and climate, sources of greenhouse gas emissions, the carbon cycle, sea level rise, and the impact of climate change on coral reefs. These lessons are available on EPA's climate change [website](#) for middle school students.

Recycling GIS Web Map



Now you can find recyclers across the State of Nevada on an interactive [map](#)! Take a quick look at the [User Guide](#) before searching by material or viewing all recycling locations. Clicking on any recycling location will bring up an information box with an address, phone number, and the materials accepted at that location. Although we work to keep this information up-to-date, facilities may come and go quickly, so please call ahead to make sure that a facility still provides the services listed.

Feedback is welcome!

Contact [Nicole Goehring](#) in Northern Nevada
[Emily Champie](#) in Southern Nevada



53rd Nevada Youth Range Camp

A majority of Nevada's youth have never seen a sage grouse or a pronghorn antelope, or experienced the unique beauty and rugged western style of the Great Basin. This past summer 30 students from across the state were provided that opportunity through the Nevada Youth Range Camp (NYRC) at Big Creek Campground in the central Toiyabe Mountain Range. This amazing outdoor experience is held every June for 9th-12th grade students interested in roughing it for a week and learning more about careers in ranching, environmental science, and range and wildlife management.

The camp is run by the University of Nevada Cooperative Extension and Nevada Society for Range Management with staff from various State and Federal agencies including the University of Nevada Reno, Nevada Department of Conservation and Natural Resources, Natural Resources Conservation Service, U.S. Bureau of Land Management and U.S. Forest Service.

Days were filled with a wide range of activities and discussion topics, hands-on instruction and exploration of sagebrush steppe, riparian habitats and mountain terrains over 10,000 ft. in elevation.

Campers learned about rangeland vegetation, identified plants and discussed the impacts of fire on sagebrush and woodland ecosystems. They investigated stream health, collected macroinvertebrates and conducted field chemistry to assess water quality. They scraped soil and used magnifiers to distinguish characteristics like color, grain size and moisture content.

A few evenings involved learning to use topographic maps and compasses to navigate to a specified location under a night sky! On another evening, **Larry Johnson**, director of **Nevada Bighorns Unlimited**, offered a fascinating presentation on big game, sportsmanship, wildlife habitat conservation and guzzler projects in Nevada.

Campers received a tour of the **Smith Creek Ranch** and fish hatchery. The ranch manager, **Sam Lossing**, dispelled any fantasies of cowboy life with a discussion of cattle ranching and business management. After lunch in an undisturbed meadow, they organized into groups to complete a conservation project for the ranch. They built a hardened stream crossing for livestock, planted Nebraska sedge along the streambank and removed an expanding stand of juniper and pinyon pine. By the end of the project, campers were dirty and tired, but justifiably pleased with their work.

There was also plenty of time for recreational activities like swimming, fishing, hiking, volleyball, horseshoes, stargazing, geocaching, campfires and personal time.

While one week does not create a qualified range manager, NYRC provides the students with a better understanding of the intricate relationships between soil, water, plants and wildlife in Great Basin ecosystems and imparts valuable skills and knowledge about successfully managing Nevada's natural resources.

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To introduce your high school students to this remarkable **Nevada Youth Range Camp** experience visit the website at <http://nevada.rangelands.org/Range%20Camp.html> or contact **Kathryn Dyer** at (775) 885-6012 or kdyer@blm.gov.

Project implemented at Smith Creek Ranch



BEFORE: Stream crossing.



AFTER: Hardened crossing.

Livestock access and stream crossings:

- Prevent or minimize water degradation from sediment and nutrients;
- Protect the watercourse from excessive streambank erosion.

The hardened crossing was designed to remain stable during a bank full event. With guidance from Dr. Sherm Swanson, bankfull flow, channel slope and channel velocities were considered. Appropriate stone sizes were chosen throughout various layers of construction. The hardened crossing was designed to eliminate any overfall and possible scour problems with a minimum thickness of rock protection greater than eight inches.

Nevada has hit another recycling record!

In 2012, Nevada recycled 28.8% of municipal solid waste (MSW) generated, up from 25.3% in 2011. Recycling data is reported by Carson City, Clark, Douglas, Elko, and Washoe counties. See more detailed data on our [webpage](#). Keep up the great work Nevadans!

NevadaRecycles.gov

Recycling Hotline 1 (800) 597-5865

www.epa.gov/epawaste/

DID YOU KNOW?

MORE THAN
96%
OF FOOD
WASTE

THAT COULD BE
COMPOSTED

ENDS UP IN
LANDFILLS
AND INCINERATORS.

We Are the Stewards

Describe some of your current work.

As a UNR faculty member, I teach rangeland management classes for the College of Agriculture, Biotechnology, and Natural Resources (CABNR), and Cooperative Extension. I also conduct research through the Nevada Agricultural Experiment Station.

My most relevant work related to watersheds and water quality is coordination of the Nevada Creeks and Communities Team which teaches riparian Proper Functioning Condition (PFC) Assessment. PFC focuses on the physical processes of riparian systems and the important relationships between water, soil and plants. The water of past floods formed the stream channel and floodplain, depositing soils where it becomes a sponge to retain the water and promote plant growth. Plants hold the soil together and prevent excessive erosion during high flow events. A properly functioning three-legged stool of water, plants, and soil keeps water on the land longer, improves water quality and provides aquatic and wildlife habitats. Everyone benefits when riparian areas function properly.

Over the years, what have you learned about what works and what doesn't with environmental education?

Throughout history, conservation philosophers have pointed to their experiences in nature as the most powerful motivation and teacher. I have experienced this first-hand with the Nevada Youth Range Camp. What works with environmental education is making and reflecting on observations, collecting and interpreting data, and then thinking about what it all means by summarizing and drawing conclusions. This is powerful for learning important lessons.

What are some changes you've recognized in our approach and attitude toward environmental practices on Nevada's rangeland?

In the early 1980s our nation was coming out of

Our featured steward is Sherman Swanson, Ph.D., who recently celebrated 30 years of participation with, and commitment to, Nevada Youth Range camp. Sherm took what he learned from his childhood, applied it to his adult life, obtained a lifetime of education, and passes his knowledge to many of us.



an environmental decade with a tremendous list of new laws governing public lands and waters. These were born from an awakening about the consequences of our environmental and conservation choices. While useful, these laws were also threatening to many who make a living from the land. Over time we have advocated environmental stewardship and are learning to make use of a wide range of practices and tools (including fire and grazing) to better manage our land and water resources.

What would you like to see for future watershed management in Nevada?

One of the big challenges for Nevada is learning how to keep our rivers and streams from becoming just ditches and storm sewers. Serial engineering approaches flooding as a problem to be controlled. But the next flood perpetuates the cycle,

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the living rivers dies, and the floods become bigger. We need to recognize the role of flood events in the overall river cycle and the importance of a properly functioning riparian area and floodplain to minimize any adverse impacts of flooding.

Educators interested in learning more about PFC, Creeks and Communities, or CABNR, may contact Dr. Swanson at 775-784-4057 or sswanson@cabnr.unr.edu

Expand Your School's Recycling: Terra Cycle

Looking for an easy way to green-up school lunches or your classroom? [Terra Cycle](#) is a program designed to collect hard-to-recycle items and turn them into new products. Terra Cycle is what the CYCLE in RECYCLE is all about!

The program states that “most of our Brigades® (national programs) offer free shipping as well as a donation for each piece of garbage that you

collect.” You can sign up for Brigades that collect juice pouches, writing instruments or snack bags.

Points are scored for each piece of waste collected, and may be redeemed either as a charitable gift or as a monetary donation to the school or charity of your choice.

<http://www.terracycle.com/en-US/brigades/>



WORD SCRAMBLER

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WORD SCRAMBLER

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Truckee River Watershed SNAPSHOT DAY It's The REAL-THING for Student Learning

Each spring students get an opportunity to learn more about the importance of water quality and quantity within the Truckee River Basin. This annual water monitoring event takes a “snapshot” of one moment in time of the water quality and habitat conditions of Lake Tahoe, the Truckee River and tributary streams. The event is hands-on education in action and provides students the invaluable opportunity to work and interact closely with local natural resource professionals.

In the Reno area, teachers from the Washoe County School District and other educators were invited to register a team of 15-25 students to monitor one of eighteen sites in the Lower Truckee River and a few key tributaries. Team leaders with expertise in natural resource management, environmental science and engineering were recruited from local and state agencies, businesses, environmental organizations and the Pyramid Lake Paiute Tribe to provide students with a ‘flash’ lesson in watershed ecology. Each team conducts field-tests for dissolved oxygen, total dissolved solids, pH and temperature; collects water samples for laboratory analysis of nutrients, sediment and bacteria and assesses



Truckee River at Rock Park

fish and wildlife habitat. The team leaders teach the whys and hows of collecting data, explain the significance of the measurements and discuss how we are part of the watershed ecosystem. In the end, this 2-3 hour practicum helps to further students’ understanding of water quality, watershed issues and riparian buffers; the concepts and practices of environmental science and engineering; and the importance of watershed stewardship. The goal is that Snapshot Day is a transformational experience for participants who take what they learn, apply it to their personal lives and spread their knowledge to others.

The Nevada Division of Environmental Protection would like to thank our resource experts for their time and educational stewardship. Their expertise and leadership help bring awareness that a healthy watershed provides many essential services and benefits to its communities. We thank our students, teachers and parents for their focused efforts in collecting accurate and valuable data to make the 13th Annual Truckee River Snapshot Day a memorable learning experience.



Lower Steamboat Creek

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“Hands in the Truckee”

Submitted By Sean Hill, Sierra Nevada Journeys

Sierra Nevada Journeys (SNJ), the Terry Lee Wells Nevada Discovery Museum (The Discovery) and The Nature Conservancy (TNC) have partnered to create “Hands in The Truckee” (H.I.T.T.), a collaborative effort designed to build student achievement and watershed awareness through hands on engagement in the classroom, in the outdoors and at the local Discovery Museum.



This dynamic 4-session program includes two inquiry-based classroom lessons, a trip to the Discovery and a field study at TNC’s McCarran Ranch Preserve, where students get their hands wet in the Truckee River. The school-based lessons, taught by SNJ’s educators, provide students with a foundation to the learning that will take place at the museum and in the field. At the Discovery, students engage in a hands-on lesson and learn about scientific models as they explore the 86-foot long model of the Truckee River. After the classroom lessons and the visit to the Discovery, students travel to TNC’s McCarran Ranch Preserve. Here, at the Truckee River, SNJ instructors guide students to explore the surrounding ecosystem, investigate water quality and draw conclusions about the diverse functions of wetlands in our watershed. All educational components of the program are aligned to Nevada State Educational Standards. The goals for “H.I.T.T.” include not only watershed education, but also the development of 21st century skills such as critical thinking and problem solving, collaboration, communication, creativity and innovation.

If you are a fifth grade teacher and interested in signing up, please contact Sean Hill, Director of School and Field Programs, at sean@sierranevadajourneys.org.

Funding for this program comes primarily from local philanthropic organizations and agencies, including the Truckee River Fund and the Hawkins Foundation.

U.S. Fish & Wildlife Service schoolyard habitat program

This partnership provides opportunities for students to experience nature as a regular part of their school curriculum. The program helps schools create natural spaces on school grounds **where students can observe, draw, write, think, and discover.** Ownership by both teachers and students is an overarching element of every schoolyard habitat. Schools or organizations serving kindergarten through 12th grade are eligible for funding for their projects. They must be working cooperatively with the U.S. Fish and Wildlife Service, and all projects must be a minimum of 1,000 sq. ft. and utilize native plants.

Please contact: **Michelle Hunt**, michelle_hunt@fws.gov, 775 861-634, USFWS Schoolyard Habitat Coordinator.



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Truckee River Watershed SNAPSHOT DAY

The 13th annual Tahoe and Truckee River Snapshot Day involved more than 400 committed volunteers working closely with many water quality agencies to gather visual assessments, photos, and water quality data at 90 locations. The event is sponsored and coordinated by the Nevada Division of Environmental Protection, the Incline Village General Improvement District, the League to Save Lake Tahoe, the Tahoe Resource Conservation District, and the Truckee River Watershed Council.

2013 Lower Truckee River Snapshot Day

Resource Partners

City of Reno
City of Sparks
Great Basin Institute
NV Department of Transportation
NV Division of Environmental Protection
Pyramid Lake Paiute Tribe
Robison Engineering
Sierra Nevada Journeys
The Nature Conservancy
Washoe County Water Resources

Education Partners

Nanchez Elementary School
Mt. View Montessori School
Dilworth Middle School
Legacy Christian School
O'Brien Middle School
Sage Ridge Middle School
Pyramid Lake High School
Spanish Springs High School
Washoe Innovation High School

The Truckee River Watershed encompasses an area of approximately 3,060 mi² within the states of California and Nevada. From its headwaters at elevations over 10,000 feet in the Sierra Nevada Mountains, the watershed expands in a north by north-east direction from Lake Tahoe, to its terminus at Pyramid Lake, approximately 110 river miles away.

The Truckee River is a vital and shared water source for more than 400,000 people in both California and Nevada. It is used for recreating, fish, wildlife, riparian habitat, hydroelectric power, municipal supplies, irrigation agriculture, and re-used repeatedly along the way.

Some Truckee River water is diverted at Derby Dam for agricultural use in the Fernley and Fallon areas. (www.tcid.org)



The **Nevada Division of Environmental Protection (NDEP)** provides resources and funding for numerous educational outreach programs and efforts throughout Nevada. NDEP sponsors and endorses Project WET and our Recycling curriculum through two Bureaus, Water Quality Planning and Waste Management.

UPCOMING

Exciting Opportunities EVENTS

Explore Your Watershed



Saturday, September 28th
8:30 – 5:00 pm
River Fork Ranch
Carson Valley



Join educators to explore the beautiful Carson River and learn about water quality, vegetation, birds and wildlife through nature journaling and Project WET and Project Learning Tree (PLT) lessons.

- Incorporate Common Core Standards through engaging hands-on activities.
- Foster critical thinking and collaborative problem-solving.

\$20.00 (includes two curriculum guides) *

* Register with a friend to save \$5.00 each!

* Already have the guides – save \$5.00!

Contact: Laurie Grey 775-232-1634

or laurie@sierranevadajourneys.org

"Our common core wants us to go a mile deep with knowledge – with this class and these activities we can do that." Gardnerville Elementary Teacher

8th Carson River Snapshot Day
October 18th 9am - 12 Noon



http://ndep.nv.gov/bwqp/snap_carson.htm

"It is important to share in the care of our watersheds with the young, and to expose them to real, hands-on science."

Snapshot Day Team Leader, 2012

ANSWERS: 1. schoolyard 2. wildlife 3. floodplain
4. assessment 5. ecosystems 6. functioning
7. agricultural 8. rangeland 9. hydroelectric
10. headwaters



America Recycles Day

November 15

America Recycles Day is November 15th! Schools, businesses, and organizations are encouraged to register any recycling events on or near this date on the America Recycles Day [website](#). Activity ideas and resources are available on this site too!

Along with America Recycles Day, schools can register for the **Recycle Bowl Competition**. See this [website](#) for rules and deadlines. The competition runs from October 21—November 15. This can be a great way to get excited about recycling while learning about **data collection**!!



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(ngoehring@ndep.nv.gov, echampie@ndep.nv.gov)
Northern and Southern Nevada Recycling Coordinators
Bureau of Waste Management
p: 1-800-597-5865 (Recycling Hotline)
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www.ndep.nv.gov/edu

